Estimasi risiko kesehatan pajanan besi dan mangan pada air tanah sebagai air minum di Kota Depok: hasil survei kualitas air tanah oleh BPP PDAM Tirta Asasta Kota Depok 2018 = Estimation health risks of iron and manganese exposure from groundwater for drinking water in Depok City: result of groundwater quality survey by BPP PDAM Tirta Asasta Depok City 2018

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Abstrak

Air tanah berperan penting sebagai sumber pemenuhan air bersih dan air minum sehari-hari di Kota Depok. Air tanah dianggap memiliki kualitas alami yang baik, namun tidak berarti semua air tanah berkualitas baik. Besi dan mangan merupakan logam esensial dan juga toksik yang sering ditemukan pada air tanah. Penelitian ini menggunakan metode Analisis Risiko Kesehatan Lingkungan (ARKL) yang bertujuan untuk mengestimasi tingkat risiko pajanan besi dan mangan pada air tanah sebagai air minum. Pengumpulan data konsentrasi besi dan mangan didapatkan dari data hasil survei kualitas air tanah oleh BPP PDAM Tirta Asasta Kota Depok tahun 2018 sebanyak 63 sampel. Data lainnya, antropometri, laju aktivitas, dan pola konsumsi air minum didapatkan dari wawancara menggunakan kuesioner dan pengukuran berat badan secara langsung di rumah 63 responden. Hasil analisis konsentrasi besi dan mangan menunjukkan hanya terdapat 18 sampel yang melebihi baku mutu konsentrasi mangan menurut Permenkes 492/2010. Jumlah estimasi asupan besi dan mangan masing-masing 5,02059 x 10-4 mg/kg/hari dan 5,52265 x 10-3 mg/kg/hari. Sedangkan RQ non karsinogenik besi dan mangan masing-masing 0,00072 dan 0,03945 yang menunjukkan bahwa tidak berisiko atau aman. Hasil analisa lebih lanjut menemukan bahwa asupan harian besi dan mangan menurut umur dan jenis kelamin dikategorikan defisiensi (Asupan besi dan mangan<AKG dan <DRI).

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Groundwater plays an important role as a source of fulfillment of daily clean water and drinking water in Depok City. Groundwater is considered to have good natural qualities, but that does not mean that all groundwater is good quality. Iron and manganese are essential but also toxic metals that are often found in groundwater. This study uses the Environmental Health Risk Assessment (EHRA) method which aims to estimate the level of iron and manganese risk exposure in groundwater as drinking water. Data collection of iron and manganese concentration was obtained from groundwater quality survey results by BPP PDAM Tirta Asasta Depok City in 2018 as many as 63 samples. Other data, anthropometry, activity rates, and drinking water consumption rates were obtained from interviews using questionnaires and measurement of body weight directly in the homes of 63 respondents. The result of the analysis of iron and manganese concentration showed that there were 18 samples that exceeded the standar quality of manganese according to Permenkes 492/2010. The estimated amount of iron and manganese intake is 5,02059 x 10-4 mg/kg/day and 5.52265 x 10-3 mg/kg/day, respectively. Whereas non-carcinogenic RQ of iron and manganese were 0,00072 and 0,03945 respectively which indicated that they were safe. Further analysis found that daily intake of iron and manganese according to age and sex categorized as deficiency (intake of iron and manganese <AKG dan <DRI).